Carcinogenesis: Target Organ Toxicology Series; Edited by M.P. Waalkes and J.M. Ward, Raven Press, New York, New York, 1994; xi + 496 pages. ISBN 0-7817-0124-4

This monograph is the fifteenth in a continuing series of excellent and timely reviews focusing on the biological aspects of specific organ toxicology. The book represents a well-written comprehensive treatise concentrating on the multifaceted, multistaged disease state of carcinogenesis. The book is divided into 13 chapters, each written by a highly regarded expert(s) in their respective field, and an inclusive subject index. Each chapter is well organized, substantially referenced and contains pertinent up-to-date information concerning our present knowledge on factors that are involved in tissue-specific chemical carcinogenesis including histological and morphological classification of specific tumors, proposed mechanisms and modifiers of carcinogenesis and pathophysiology of induced tumors. The first chapter by Elizabeth Weisburger provides a concise overview of general principles of chemical carcinogenesis including brief descriptions of types of carcinogens (direct or indirect acting), classes of chemical carcinogens (organic, inorganic, physical agents) as well as modifying factors for carcinogenesis. The second chapter addresses the concordance of cancer development in humans with results from experimental laboratory animal models including an extensive listing of shared organ and tissue sites of chemically induced cancers in humans and in animals. Subsequent chapters deal with specific organ site carcinogenesis including the liver, gastrointestinal tract, kidney, urinary bladder, upper respiratory tract, skin, nervous system, and male reproductive system. Although much of the information presented in each chapter is derived from experimental animal studies appropriate epidemiological data linking human cancer risk and incidence to specific carcinogenic agents have been cited when availalbe. The concluding chapter provides an overview of the pathological procedures utilized in animal carcinogenesis studies including general autopsy techniques for each organ system. By-in-large this compendium brings together under a single cover an excellent compilation of our current understanding of the significant aspects of chemical carcinogenesis in each of the major organ systems. It should be of benefit to both postdoctoral students as well as senior scientists who wish to keep abreast with organ specific carcinogenesis.

Peter Wirth

Protocols for Oligonucleotide Conjugates Synthesis and Analytical Techniques; Edited by S. Agarwal, The Humana Press, Totowa, NJ; 1994. xiv + 377 pp. $ 59.50 (pbk). ISBN 0-89603-252-3

This monograph is a companion volume entitled 'Protocols for Oligonucleotides and Analogs: Synthesis and Procedures'.

Oligonucleotide synthesis has developed to a highly efficient level and the mechanical synthesis of large oligonucleotides has become possible. However, the synthesis of polynucleotides containing modified constituents requires strategies suitable for more unstable or susceptible compounds. Therefore, chemical procedures for the preparation of nucleoside or nucleotide units are necessary for the synthesis of oligonucleotide conjugates, which are useful for molecular biology and for applications of nucleic acids to medicine.

This volume contains up-to-date information for the synthesis of oligonucleotide derivatives and their analysis. This should be useful, not only for those who are new in the field of nucleic acid chemistry but also for investigators in this field.

The first chapter of 'Protocols for Oligonucleotide Conjugates' describes a comprehensive review with 422 references on protecting groups in various stages of the development of oligonucleotide synthesis. The following chapters include the synthesis and incorporation of modified bases into oligonucleotides to introduce reporter groups, the derivatization of synthetic oligonucleotides with amino and thio groups for the attachment of various reporter groups and for the purification of oligonucleotide conjugates, the post-synthetic functionalization of oligonucleotides at their 3′ or 5′ terminus, and protocols for the use of oligonucleotide–enzyme conjugates as diagnostic probes.

In a later chapter, the incorporation of new degenerate bases is described along with their use in polymerase chain reactions. The remaining reviews for analytical techniques include the synthesis of ^{15}N-labeled DNA fragments, which is the best protocol for this purpose. The following chapters describe high performance liquid chromatography, sequencing of oligonucleotides and their termini, gel-capillary electrophoresis, nuclear magnetic resonance, mass spectrometry, and thermodynamic stability. Gel-capillary electrophoresis is a new technique for the analysis of oligonucleotides, and it has several advantages in speed, resolution, reproducibility in quantity, and automation. The parameters affecting this type of oligonucleotide analysis are discussed.

The last chapter, on thermodynamic characterization of melting transitions in nucleic acid molecules, is useful especially in the application to studies on higher-order nucleic acid structures.

These protocols are a great help to find proper references for various synthetic procedures and hopefully they will be continuously updated.

Eiko Ohtsuka

Edited by Tomei, L.D. and Cope, F.O. **Apoptosis II. The Molecular Basis of Apoptosis in Disease. Current communications in Cell and Molecular Biology, Vol. 8;** Cold Spring Harbor Laboratory Press; Cold Spring Harbor, 1994. viii + 430 pp. $ 65.00. ISBN 0-87969-395-9

The book Apoptosis II is a logical but interesting continuation of Apoptosis I which gave general, indispensable description and definition of apoptosis in some models. Apoptosis II is attractive as it demonstrates the involvement of apoptosis in physiology (apoptosis as a parameter of epidermal homeostasis is clearly described) but also in pathological conditions (AIDS and cancer).

At the molecular level, really up-to-date data are reviewed by well-known researchers and the hypotheses and models proposed are interesting and stimulating. The chapters on c-myc and human adenoviruses in the control of apoptosis are of great interest.

Moreover, the importance in apoptotic cell death of proteins less in vogue at the present time, as transglutaminase or milieu matrix proteins is also emphasized. Finally the chapter written by Martin and Cotter brings to light often forgotten data. Among these are the fact that